

CLAIMS

- Sub a2
1. In a particulate drug delivery composition for intranasal delivery comprising a plurality of bioadhesive microspheres and a systemically active drug, the improvement comprising that at least 90 wt % of the microspheres of the composition have a diameter of between 0.1  $\mu\text{m}$  and 10  $\mu\text{m}$ .
  2. A drug delivery composition according to Claim 1 wherein the microspheres are prepared from a material that will gel in contact with the mucosal surface.
  3. A drug delivery composition according to Claim 1 or 2 wherein the microspheres comprise starch, starch derivatives, gelatin, albumin, collagen, dextran or dextran derivatives.
  4. A drug delivery composition according to Claim 3 wherein the microspheres are starch microspheres.
  5. A drug delivery composition according to Claim 1 wherein the microsphere material is cross-linked.
  6. A drug delivery composition according to Claim 1 wherein the microspheres have been stabilised by heat treatment.
  7. A drug delivery composition according to Claim 1 additionally comprising an absorption enhancer.
  8. A drug delivery composition according to Claim 7 wherein the absorption enhancer is a surfactant, a lysophosphatidylcholine or a lysophosphatidylglycerol.
- Sub a3
- Sub a4
- Sub a5

9. A drug delivery composition according to Claim 1 wherein the drug is a biologically active peptide.

10. A drug delivery composition according to Claim 9 wherein the peptide  
5 is insulin or calcitonin.

11. A system for intranasal drug delivery comprising a drug delivery composition according to Claim 1 and a container having an orifice through which the composition can be delivered to the nasal mucosa in a gas stream.  
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12. A system according to Claim 11 wherein the system is such that, in use, the product of the flow rate and the square of the microsphere aerodynamic diameter is greater than  $2000 \mu\text{m}^2 \cdot \text{litres/min}$ .

15 13. A method of delivering a drug to the nasal mucosa, comprising introducing a gas stream containing a composition according Claim 1 into the nose.

14. A method of treating diabetes comprising introducing a gas stream  
20 containing a composition according to Claim 1 wherein the systemically active drug is insulin into the nose.

Add a<sup>6</sup>7

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